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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,719	10/17/2003	Donald E. Newton	570-09	1757

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EXAMINER

FULLER, BRYAN A

ART UNIT PAPER NUMBER

3676

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

*KL*

**Office Action Summary**

Application No.

10/688,719

Applicant(s)

NEWTON ET AL.

Examiner

Bryan A. Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 5, 9 – 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan (4,625,800) in view of Seidle et al (6,119,778).

With respect to claims 1 – 3 and 10 - 12: Venkatesan teaches in column 2, lines 59 – 61 an in-situ combustion method where pure oxygen or oxygen-enriched air may be injected into the subsurface formation through the injection well. Venkatesan does not teach a method for generating an oxygen-enriched gas stream. Seidle et al teaches in column 6, lines 24 – 28, 39 and 40 suitable techniques capable of separating air into oxygen-enriched and oxygen depleted streams. Two suitable air separation techniques were taught. The first was a non-cryogenic membrane separator system. The second was a pressure swing adsorption system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Venkatesan in view of Seidle et al and use either the membrane separator system or the pressure swing adsorption system as a non-cryogenic method of generating an oxygen-enriched gas stream.

With respect to claims 4 –5 and 11 – 12: Venkatesan teaches in column 2, lines 59 – 63 that the oxygen-enriched stream can be pure oxygen or oxygen-enriched air.

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The oxygen level is dependent upon the preferred embodiment of the system. This suggests that air can be mixed with a pure oxygen gas stream to obtain the desired oxygen content for the preferred embodiment. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Venkatesan in view of Seidle et al and use air to dilute the oxygen-enriched gas stream to the desired oxygen content.

With respect to claims 9 and 18: Venkatesan teaches in column 1, lines 61 – 63 the method of injecting oxygen or oxygen-enriched air into the surface formation through the injection well. It is inherent that using a pump to inject a gas stream down a well also compresses the gas. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a pump to inject the oxygen-enriched gas into the subsurface formation.

3. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan in view of Seidle et al as applied to claims 1 and 10 above, and in further view of Smith et al (6,116,027).

With respect to claims 6 and 15: As discussed above, Venkatesan and Seidle et al teach all the elements except using an oxygen-depleted stream (byproduct) to operate a compressor for compressing another fluid in the process. Smith et al teaches in column 3, lines 63 – 65 an air separation system that yields at least one product stream enriched in a constituent of air (oxygen-enriched) and at least one byproduct stream depleted in that constituent (oxygen-depleted). Additionally, Smith et al teaches in column 4, lines 4 –7 a system where at least a portion of the work for compressing

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the additional air is provided by work expansion of the byproduct stream from the air separation system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Venkatesan and Seidle et al in view of Smith et al and use the oxygen-depleted gas stream from the separation system (byproduct) to compress the oxygen-enriched gas stream (product) prior to injecting it into the well.

4. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan in view Seidle et al as applied to claims 1 and 10 above, and further in view of Greaves (5,626,191).

With respect to claims 7 and 16: As discussed above, Venkatesan and Seidle et al teach all the elements except the toe-to-heel combustion process. Greaves et al teaches in column 2, line 12 – column 3, line 14 the use of a toe-to-heel combustion process. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Venkatesan and Seidle et al in view of Greaves et al and use a toe-to-heel combustion process as a means to facilitate the in-situ combustion method.

5. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan in view of Seidle et al and Greaves as applied to claims 7 and 16 above, and further in view of Ayasse et al (6,412,557).

With respect to claims 8 and 17: As discussed above, Venkatesan, Seidle et al, and Greaves et al teach all the elements except an in-situ combustion process that uses a catalyst to upgrade oil before that oil has been withdrawn from the formation. Ayasse

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et al teaches in column 3, line 28 – column 4, line 38 the use of a catalyst to upgrade the oil in an in-situ combustion process before the oil has been withdrawn from the formation. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Venkatesan, Seidle et al, and Greaves et al in view of Ayasse et al and used a catalyst to upgrade the oil prior to being withdrawn from the formation.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan and Seidle et al in view of Fernbacher et al (4,683,947).

With respect to claim 19: As discussed above, Venkatesan and Seidle et al teach all the elements except selecting a location of the formation and determining parameters relating to the formation. Fernbacher et al teaches in column 3, lines 56 – 65 the necessity of considering other parameters aside from gas composition for in-situ combustion projects. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Venkatesan and Seidle et al in view of Fernbacher et al and selected the location of the formation and determine the parameters relating to the formation.

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan, Seidle et al, and Fernbacher et al as applied to claim 19 above, and further in view of Martin et al (4,546,829).

With respect to claim 20: Venkatesan, Fernbacher, and Seidle et al teach the features as previously described. The difference between these references and claim 20 is that they do not teach a portable system to perform the duties of claim 19. Martin

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teaches in column 3, lines 12 – 15 a portable versatile modular aboveground system and process for on-site generation of combustion gases. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Venkatesan, Seidle et al, and Fernbacher in view of Martin et al and develop a portable system to generate the in-situ combustion gases used by this method.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Price (4,945,984) discloses the use of pressurized combustible gas in an in-situ combustion process.

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 19 and 20 have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's arguments filed 9/02/2005 have been fully considered but they are not persuasive. Venkatesan does teach the method of injecting oxygen or oxygen-enriched gas into a subterranean formation to combust in-situ and to stimulate production. As conceded, Venkatesan does not teach any method of non-cryogenically producing the oxygen or oxygen-enriched gas. Seidle et al does teach methods of non-cryogenically producing oxygen or oxygen-enriched gas above the surface.

Furthermore, Seidle et al teaches the method of injecting the non-cryogenically produced oxygen or oxygen-enriched gas into a subterranean formation. It is not important that the Applicant believes that Seidle et al attempted to list all possible uses

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for their produced oxygen and did not list oil-bearing formations as one of the places for possible uses. Specific use in oil-bearing formations was not necessary for Seidle et al to list because the use of oxygen or oxygen-enriched gas in oil-bearing formations was described in Venkatesan. The only element that Venkatesan was missing was a method of producing an oxygen or oxygen-enriched gas. It would have been obvious to use the methods of producing oxygen-enriched gas of Seidle et al to supply the oxygen stream in Venkatesan.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan A. Fuller whose telephone number is (571) 272-




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8119. The examiner can normally be reached on M - Th 7:30 - 5:00 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian E. Glessner can be reached on (571) 272-6843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Brian E. Glessner  
Supervisory Patent Examiner  
Art Unit 3676

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